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ABSTRACT

This survey of the Higher Education Panel of the American Council on Education, conducted during September and October 1971, concerned the split of research funds between young and senior faculty at institutions granting Ph.D.'s in science and engineering. Each institution was asked, first, to indicate which departments, in a list of 17 selected science, engineering, and clinical fields, granted the Ph.D. Then, if a given department did so, the chairman of that department was asked whether, in his opinion, the split of funds between young and senior faculty was appropriate. If the chairman reported that he felt the split of funds to be inappropriate, he was next asked to indicate whether the split favored senior or young staff and to give his opinion as to the reason for the inappropriate split of research funds. This document presents the results of this survey. (Author/HS)

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Survey No. 2

November 4, 1971

Research Support for Science Faculty

Barbara Blandford
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The second survey of the Higher Education Panel (HEP), conducted during September and October 1971, concerned the split of research funds between young and senior faculty at institutions granting Ph.D.'s in science and engineering. (Young staff is defined as those who had held their doctorate for seven or less years; senior staff is defined as those who had received the doctorate more than seven years ago.) Each institution was asked, first, to indicate which departments, in a list of 17 selected science, engineering, and clinical fields, granted the Ph.D. (See Figure 1 for a copy of the survey instrument and for the definitions of the departments.) Then, if a given department did so, the chairman of that department was asked whether, in his opinion, the split of funds between young and senior faculty was appropriate. If the chairman reported that he felt the split of funds to be inappropriate, he was next asked to indicate whether the split favored senior or young staff and to give his opinion as to the reason for the inappropriate split of research funds.

On September 24, the survey was mailed to 89 institutions granting Ph.D.'s in science, engineering, and clinical fields, including five independent medical schools. Five of the 89 institutions indicated they did

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not grant the Ph.D. in any of the 17 departments listed; they were deleted from the population defined for this survey. Of the 84 remaining institutions, one institution awarded only interdisciplinary degrees and thus could not be included, and another failed to return the survey form. Therefore, this report is based on the returns from 82 institutions (a 97.6 percent response rate) out of a total of 218 granting Ph.D.'s in science and engineering.

Sampling and Weighting

The basic observation units were the specified departments of the 218 institutions granting Ph.D.'s in science and engineering. (These 218 institutions included eleven independent medical schools.) The original sample consisted of 84 institutions, or 38.5 percent of the population. Because of the previously mentioned elimination of two institutions, the final sample comprised 82 institutions, or 37.6 percent of the population of institutions.

The 218 institutions were sorted into eight groups for weighting and analysis of the responses from the 82 sample institutions. To obtain estimates of the number of departments in the 218 institutions with a given response to a survey question, the number of responses in each of the 82 sample institutions was multiplied by the number of total institutions in the same group and divided by the number of sample institutions in that group. This ratio constituted the group weight. The eight groups with numbers of institutions in the population and in the final sample, the sampling ratio, and the group weights are as follows:

Group Definition	Population	Final Sample	% of Population in Sample	Group Weights
Large* public universities	49	17	34.7	2.9
Small public universities	56	19	33.9	2.9
Large private universities	26	10	38.5	2.6
Small private universities	31	15	48.4	2.1
Public four-year colleges	22	5	22.7	4.4
Large** private four-year colleges	11	7	63.6	1.6
Small private four-year colleges	12	4	33.3	3.0
Independent medical schools	11	5	45.5	2.2
Total	218	82	37.6	(2.7)

*400 or more Ph.D.'s on the faculty

**100 or more Ph.D.'s on the faculty

Discussion of Tables

Following the text are the statistical tables that give the data from this survey. Tables 1-9, which are based on weighted counts estimated for the population of 218 institutions, report the proportion of the departments in which the chairman felt the split of funds was either appropriate or inappropriate. If the chairman felt the split of research funds was inappropriate, percentages indicating which of the two faculty groups were favored are given. (A very small number of departments did not indicate the appropriateness of the split nor did they say whether it favored young or senior staff.) Table 1 reports the data for all institutions, and the following eight tables report the data for each group.

To obtain an estimate of the sampling error in the percentages reported in Table 1, the sample of 82 institutions was divided into two subsamples within each group. Estimates of the weighted response

percentages were recomputed for each group and for those departments in which data were adequate for estimating sampling errors. These recomputed response percentages from each subsample were compared and estimates of sampling errors computed, taking into account the variations in sampling rates in the various groups. The resulting estimated sampling errors are shown in Table 10.

Most of the error estimates are well below 10 percent, though they would be somewhat higher for departments and response categories not shown and for numerical counts as opposed to the percentage data. They would be somewhat lower, on the average, for response percentages reported for grouped departments such as Life Sciences and Science and Engineering.

Table 11 shows the percentage of chairmen in each field who mentioned each of seven reasons why young staff received an inappropriate amount of the research funds available to the institution. For example, 66.7 percent of the chairmen of biochemistry departments gave "shortage of total funds available" as a reason for the inappropriate split of research funds between the two groups of faculty.

Table 1

Higher Education Panel
American Council on Education

Research Support for Science Faculty*

All Institutions
[N = 218 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Split Not Appropriate; Split of Funds Favors: Senior Staff	Fund Split Not Specified
Science and Engineering	1623	67.0	3.4	25.4	4.2
Physics	179	59.4	0.0	39.0	1.6
Chemistry	198	78.7	0.0	16.9	4.4
Mathematics	168	67.0	0.0	26.2	6.8
Electrical Engineering	127	66.3	6.2	25.2	2.3
Chemical Engineering	116	70.0	4.7	20.5	4.7
Life Sciences (Subtotal)	(458)	(68.2)	(5.0)	(23.4)	(3.3)
Biochemistry	126	70.4	2.3	27.3	0.0
Biological Sciences	66	56.9	4.4	34.4	4.4
Biology	84	57.9	20.9	12.5	8.7
Microbiology	103	72.4	0.0	22.7	4.9
Physiology	79	79.8	0.0	20.2	0.0
Sociology	96	59.4	3.0	31.4	6.2
Economics	136	63.4	6.0	30.6	0.0
Psychology	145	62.4	5.8	21.2	10.5
Medical Sciences	72	65.1	0.0	27.3	7.6
Medicine	17	48.5	0.0	51.5	0.0
Pathology	41	74.0	0.0	12.5	13.5
Pediatrics	8	31.0	0.0	69.0	0.0
Surgery	6	100.0	0.0	0.0	0.0

*Based on weighted estimates

Table 2

Higher Education Panel
American Council on Education

Research Support for Science Faculty *

Large Public Universities**
[N = 49 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Senior Staff	Fund Split Not Specified
Science and Engineering	514	66.1	5.7	24.8	3.4
Physics	49	58.8	0.0	41.2	0.0
Chemistry	49	70.6	0.0	29.4	0.0
Mathematics	49	76.5	0.0	17.6	5.9
Electrical Engineering	41	64.3	14.3	14.3	7.1
Chemical Engineering	41	64.3	7.1	21.5	7.1
Life Sciences (Subtotal)	(151)	(67.3)	(7.7)	(25.0)	(0.0)
Biochemistry	49	76.5	5.9	17.6	0.0
Biological Sciences	15	40.0	20.0	40.0	0.0
Biology	20	57.1	28.6	14.3	0.0
Microbiology	41	71.4	0.0	28.6	0.0
Physiology	26	66.7	0.0	33.3	0.0
Sociology	44	60.0	6.7	26.6	6.7
Economics	46	50.0	6.2	43.8	0.0
Psychology	44	80.0	6.7	0.0	13.3
Medical Sciences	41	50.0	0.0	42.9	7.1
Medicine	12	25.0	0.0	75.0	0.0
Pathology	17	66.6	0.0	16.7	16.7
Pediatrics	6	0.0	0.0	100.0	0.0
Surgery	6	100.0	0.0	0.0	0.0

*Based on weighted estimates

**400 or more Ph.D.'s on the faculty; 45.4% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 3

Higher Education Panel
American Council on Education

Research Support for Science Faculty*

Small Public Universities**
[N = 56 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Senior Staff	Fund Split Not Specified
Science and Engineering	392	68.9	2.8	24.6	3.7
Physics	47	49.2	0.0	44.6	6.2
Chemistry	52	94.4	0.0	5.6	0.0
Mathematics	38	61.5	0.0	30.8	7.7
Electrical Engineering	26	77.8	0.0	22.2	0.0
Chemical Engineering	26	100.0	0.0	0.0	0.0
Life Sciences (Subtotal)	(116)	(65.0)	(2.5)	(25.0)	(7.5)
Biochemistry	32	72.7	0.0	27.3	0.0
Biological Sciences	23	37.5	0.0	50.0	12.5
Biology	23	62.5	12.5	12.5	12.5
Microbiology	23	75.0	0.0	12.5	12.5
Physiology	15	80.0	0.0	20.0	0.0
Sociology	6	100.0	0.0	0.0	0.0
Economics	42	62.5	12.6	24.9	0.0
Psychology	39	52.1	7.4	40.5	0.0
Medical Sciences	10	100.0	0.0	0.0	0.0
Medicine	5	100.0	0.0	0.0	0.0
Pathology	5	100.0	0.0	0.0	0.0
Pediatrics	0	0.0	0.0	0.0	0.0
Surgery	0	0.0	0.0	0.0	0.0

*Based on weighted estimates

**Fewer than 400 Ph.D.'s on the faculty; 14.6% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 4

Higher Education Panel
American Council on Education

Research Support for Science Faculty*

Large Private Universities**
[N = 26 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Senior Staff	Fund Split Not Specified
Science and Engineering	265	74.5	2.9	18.7	3.9
Physics	26	70.0	0.0	30.0	0.0
Chemistry	23	100.0	0.0	0.0	0.0
Mathematics	26	80.0	0.0	10.0	10.0
Electrical Engineering	21	62.5	0.0	37.5	0.0
Chemical Engineering	16	50.0	16.7	16.7	16.6
Life Sciences (Subtotal)	(83)	(78.1)	(3.1)	(18.8)	(0.0)
Biochemistry	18	42.9	0.0	57.1	0.0
Biological Sciences	16	100.0	0.0	0.0	0.0
Biology	13	60.0	20.0	20.0	0.0
Microbiology	21	87.5	0.0	12.5	0.0
Physiology	15	100.0	0.0	0.0	0.0
Sociology	21	62.5	0.0	37.5	0.0
Economics	23	88.9	0.0	11.1	0.0
Psychology	26	60.0	10.0	10.0	20.0
Medical Sciences	11	75.0	0.0	0.0	25.0
Medicine	0	0.0	0.0	0.0	0.0
Pathology	8	66.7	0.0	0.0	33.3
Pediatrics	3	100.0	0.0	0.0	0.0
Surgery	0	0.0	0.0	0.0	0.0

*Based on weighted estimates

**400 or more Ph.D.'s on the faculty; 20.5% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 5

Higher Education Panel
American Council on Education

Research Support for Science Faculty*

Small Private Universities**
[N = 31 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Senior Staff	Fund Split Not Specified
Science and Engineering	179	67.1	1.2	29.4	2.3
Physics	19	77.8	0.0	22.2	0.0
Chemistry	29	71.4	0.0	28.6	0.0
Mathematics	21	50.0	0.0	50.0	0.0
Electrical Engineering	11	60.0	20.0	20.0	0.0
Chemical Engineering	8	75.0	0.0	25.0	0.0
Life Sciences (Subtotal)	(42)	(75.0)	(0.0)	(25.0)	(0.0)
Biochemistry	11	80.0	0.0	20.0	0.0
Biological Sciences	0	0.0	0.0	0.0	0.0
Biology	17	87.5	0.0	12.5	0.0
Microbiology	6	33.3	0.0	66.6	0.0
Physiology	8	75.0	0.0	25.0	0.0
Sociology	17	62.5	0.0	37.5	0.0
Economics	11	80.0	0.0	20.0	0.0
Psychology	21	50.0	0.0	30.0	20.0
Medical Sciences	2	100.0	0.0	0.0	0.0
Medicine	0	0.0	0.0	0.0	0.0
Pathology	2	100.0	0.0	0.0	0.0
Pediatrics	0	0.0	0.0	0.0	0.0
Surgery	0	0.0	0.0	0.0	0.0

*Based on weighted estimates

**Fewer than 400 Ph.D.'s on the faculty; 9.8% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 6

Higher Education Panel
American Council on Education

Research Support for Science Faculty*

Public Four-Year Colleges**
[N = 22 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Senior Staff	Fund Split Not Specified
Science and Engineering	114	61.8	0.0	27.0	11.2
Physics	18	50.0	0.0	50.0	0.0
Chemistry	22	60.0	0.0	0.0	40.0
Mathematics	18	100.0	0.0	0.0	0.0
Electrical Engineering	13	66.6	0.0	33.3	0.0
Chemical Engineering	13	66.6	0.0	33.3	0.0
Life Sciences (Subtotal)	(8)	(50.0)	(0.0)	(0.0)	(50.0)
Biochemistry	0	0.0	0.0	0.0	0.0
Biological Sciences	4	100.0	0.0	0.0	0.0
Biology	4	0.0	0.0	0.0	100.0
Microbiology	0	0.0	0.0	0.0	0.0
Physiology	0	0.0	0.0	0.0	0.0
Sociology	4	0.0	0.0	100.0	0.0
Economics	9	50.0	0.0	50.0	0.0
Psychology	9	50.0	0.0	50.0	0.0
Medical Sciences	0	0.0	0.0	0.0	0.0
Medicine	0	0.0	0.0	0.0	0.0
Pathology	0	0.0	0.0	0.0	0.0
Pediatrics	0	0.0	0.0	0.0	0.0
Surgery	0	0.0	0.0	0.0	0.0

*Based on weighted estimates

**5.0% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 7

Higher Education Panel
American Council on Education

Research Support for Science Faculty*

Large Private Four-Year Colleges**
[N = 11 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Senior Staff	Fund Split Not Specified
Science and Engineering	58	69.2	5.5	25.3	0.0
Physics	8	80.0	0.0	20.0	0.0
Chemistry	10	83.3	0.0	16.7	0.0
Mathematics	8	40.0	0.0	60.0	0.0
Electrical Engineering	6	100.0	0.0	0.0	0.0
Chemical Engineering	3	100.0	0.0	0.0	0.0
Life Sciences (Subtotal)	(16)	(60.0)	(20.0)	(20.0)	(0.0)
Biochemistry	2	100.0	0.0	0.0	0.0
Biological Sciences	6	50.0	0.0	50.0	0.0
Biology	3	0.0	100.0	0.0	0.0
Microbiology	2	100.0	0.0	0.0	0.0
Physiology	3	100.0	0.0	0.0	0.0
Sociology	2	100.0	0.0	0.0	0.0
Economics	2	0.0	0.0	100.0	0.0
Psychology	3	50.0	0.0	50.0	0.0
Medical Sciences	2	100.0	0.0	0.0	0.0
Medicine	0	0.0	0.0	0.0	0.0
Pathology	2	100.0	0.0	0.0	0.0
Pediatrics	0	0.0	0.0	0.0	0.0
Surgery	0	0.0	0.0	0.0	0.0

*Based on weighted estimates

**100 or more Ph.D.'s on the faculty; 2.7% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 8

Higher Education Panel
American Council on Educat

Research Support for Science F

Small Private Four-Year Coll
[N = 12 Institutions]

Field	Department N	Percent of P... anting Departments Reporting: Split of Funds Appropriate	t Not Appropriate; t of Funds Favors: ung aff	Senior Staff	Fund Split Not Specified
Science and Engineering	66	40.9	4.5	45.5	9.1
Physics	12	50.0	0.0	50.0	0.0
Chemistry	12	50.0	0.0	50.0	0.0
Mathematics	9	0.0	0.0	66.7	33.3
Electrical Engineering	9	33.3	0.0	66.7	0.0
Chemical Engineering	9	33.3	0.0	66.7	0.0
Life Sciences (Subtotal)	(6)	(50.0)	(50.0)	(0.0)	(0.0)
Biochemistry	3	100.0	0.0	0.0	0.0
Biological Sciences	0	0.0	0.0	0.0	0.0
Biology	3	0.0	100.0	0.0	0.0
Microbiology	0	0.0	0.0	0.0	0.0
Physiology	0	0.0	0.0	0.0	0.0
Sociology	3	0.0	0.0	0.0	100.0
Economics	3	100.0	0.0	0.0	0.0
Psychology	3	100.0	0.0	0.0	0.0
Medical Sciences	0	0.0	0.0	0.0	0.0
Medicine	0	0.0	0.0	0.0	0.0
Pathology	0	0.0	0.0	0.0	0.0
Pediatrics	0	0.0	0.0	0.0	0.0
Surgery	0	0.0	0.0	0.0	0.0

*Based on weighted estimates

**Fewer than 100 Ph.D.'s on the faculty; 1.0% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 9

Higher Education Panel
American Council on Education

Research Support for Science Faculty*

Independent Medical Colleges**
[N = 11 Institutions]

Field	Department N	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Senior Staff	Fund Split Not Specified
Science and Engineering	35	62.4	0.0	31.3	6.3
Physics	0	0.0	0.0	0.0	0.0
Chemistry	0	0.0	0.0	0.0	0.0
Mathematics	0	0.0	0.0	0.0	0.0
Electrical Engineering	0	0.0	0.0	0.0	0.0
Chemical Engineering	0	0.0	0.0	0.0	0.0
Life Sciences (Subtotal)	(35)	(62.5)	(0.0)	(31.3)	(6.3)
Biochemistry	11	60.0	0.0	40.0	0.0
Biological Sciences	2	0.0	0.0	100.0	0.0
Biology	0	0.0	0.0	0.0	0.0
Microbiology	11	60.0	0.0	20.0	20.0
Physiology	11	80.0	0.0	20.0	0.0
Sociology	0	0.0	0.0	0.0	0.0
Economics	0	0.0	0.0	0.0	0.0
Psychology	0	0.0	0.0	0.0	0.0
Medical Sciences	7	66.7	0.0	33.3	0.0
Medicine	0	0.0	0.0	0.0	0.0
Pathology	7	66.7	0.0	33.3	0.0
Pediatrics	0	0.0	0.0	0.0	0.0
Surgery	0	0.0	0.0	0.0	0.0

*Based on weighted estimates
**1.0% of graduate enrollment in Ph.D.-granting institutions is represented by this group of institutions.

Table 10

Estimated Sampling Error in Population Estimates

Department	Response That Fund Split:	Estimated Percent Of All Such Departments So Responding*	Estimated Sampling Error
Biochemistry	Appropriate	70.4	7.2
	Favors Senior Faculty	27.3	5.5
Biological Science	Appropriate	56.9	11.4
	Favors Senior Faculty	34.4	9.5
Biology	Appropriate	57.9	7.3
Microbiology	Appropriate	72.4	4.9
	Favors Senior Faculty	22.7	3.8
Physiology	Appropriate	79.8	5.5
Chemical Engineering	Appropriate	70.0	4.6
	Favors Senior Faculty	20.5	2.3
Chemistry	Appropriate	78.7	6.7
	Favors Senior Faculty	16.9	7.0
Electrical Engineering	Appropriate	66.3	5.4
	Favors Senior Faculty	25.2	6.7
Mathematics	Appropriate	67.0	2.6
	Favors Senior Faculty	26.2	2.6
Physics	Appropriate	59.4	4.4
Economics	Appropriate	63.4	30.6
	Favors Senior Faculty	30.6	13.0
Psychology	Appropriate	62.4	5.2
Sociology	Appropriate	59.4	4.8
	Favors Senior Faculty	31.4	4.7

*Taken from Table 1

Table 11

Reasons Given for Young Staff Receiving Inappropriate Amount of Research Funds

(N = 82 Institutions)*

Field	N**	Shortage of:				Other		
		Total Funds Available	Time For Research	Space/ Equipment	Graduate Assistants	Have Little or No Experience	Not Able To Get Non-Federal Funds	Federal Grant Mechanisms
Biochemistry	12	8 (66.7)	0 (0.0)	2 (16.7)	1 (8.3)	3 (25.0)	0 (0.0)	3 (25.0)
Biological Sciences	8	3 (37.5)	0 (0.0)	0 (0.0)	0 (0.0)	1 (12.5)	0 (0.0)	3 (37.5)
Biology	4	2 (50.0)	1 (25.0)	1 (25.0)	1 (25.0)	1 (25.0)	0 (0.0)	0 (0.0)
Chemical Engineering	8	6 (75.0)	0 (0.0)	2 (25.0)	0 (0.0)	1 (12.5)	1 (12.5)	2 (25.0)
Chemistry	12	6 (50.0)	0 (0.0)	1 (8.3)	0 (0.0)	3 (25.0)	0 (0.0)	2 (16.7)
Economics	13	7 (53.9)	0 (0.0)	0 (0.0)	2 (15.4)	6 (46.2)	0 (0.0)	2 (15.4)
Electrical Engineering	11	8 (72.7)	0 (0.0)	3 (27.3)	0 (0.0)	1 (9.1)	1 (9.1)	3 (27.3)
Mathematics	18	10 (55.6)	1 (5.6)	0 (0.0)	0 (0.0)	1 (5.6)	0 (0.0)	9 (50.0)
Medicine	3	1 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (33.3)
Microbiology	8	5 (62.5)	0 (0.0)	2 (25.0)	0 (0.0)	3 (37.5)	0 (0.0)	1 (12.5)
Pathology	2	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Pediatrics	2	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)	1 (50.0)
Physics	19	14 (73.7)	0 (0.0)	0 (0.0)	2 (10.5)	0 (0.0)	1 (5.3)	6 (31.6)
Physiology	6	4 (66.7)	0 (0.0)	0 (0.0)	0 (0.0)	2 (33.3)	0 (0.0)	1 (16.7)
Psychology	9	3 (33.3)	1 (11.1)	2 (22.2)	0 (0.0)	1 (11.1)	0 (0.0)	3 (33.3)
Sociology	9	3 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	5 (55.6)	0 (0.0)	2 (22.2)
Surgery	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

*Unweighted data

**Ns and percentages (given in parentheses) may add to more than or less than the expected total because some chairmen gave more than one reason and some chairmen gave no reason at all for the inappropriate split favoring senior staff.

Figure 1

American Council on Education
Higher Education Panel
Survey No. 2
Research Support for Science Faculty

Below are listed 17 science departments about which we would like to have the following information: (1) Are they doctorate-granting departments and, if so, (2) considering all the research funds available to the department does the department chairman feel that there is at this time an appropriate split between research funds available to young staff (those who received the Ph.D. seven or fewer years ago) and senior staff (those who received the Ph.D. more than seven years ago)? Research funds include all those available to faculty performing in associated research roles on projects as well as all those funds available to principal investigators. If any department chairman feels the split is inappropriate, cite the department and reason for the situation at the bottom of the page. The opinions expressed in this response must be those of the department chairman. If a department does not grant the Ph.D. (i.e., "no" checked in column 2), the remaining information need not be provided for that department. If split of funds is inappropriate in any department, indicate whether the split favors young or senior staff.

Departments*	Grant Ph.D. Yes	Grant Ph.D. No	Split of Funds Appropriate Yes	Split of Funds Appropriate No**	Split of Funds Favors: Young Staff	Split of Funds Favors: Senior Staff
1. Biochemistry	___	___	___	___	_____	_____
2. Biological Sciences	___	___	___	___	_____	_____
3. Biology	___	___	___	___	_____	_____
4. Chemical Engineering	___	___	___	___	_____	_____
5. Chemistry	___	___	___	___	_____	_____
6. Economics	___	___	___	___	_____	_____
7. Electrical Engineering	___	___	___	___	_____	_____
8. Mathematics	___	___	___	___	_____	_____
9. Medicine	___	___	___	___	_____	_____
10. Microbiology	___	___	___	___	_____	_____
11. Pathology	___	___	___	___	_____	_____
12. Pediatrics	___	___	___	___	_____	_____
13. Physics	___	___	___	___	_____	_____
14. Physiology	___	___	___	___	_____	_____
15. Psychology	___	___	___	___	_____	_____
16. Sociology	___	___	___	___	_____	_____
17. Surgery	___	___	___	___	_____	_____

*See reverse side for definitions of departments.

**If you have indicated that the chairman of a particular department feels the fund split is inappropriate, place the number of the department (i.e., 1 = Biochemistry) in the blank below that indicates the reason for the inappropriate split.

_____Insufficient total funds

_____Shortage of graduate assistants

_____Insufficient time for research

_____Other

_____Insufficient space or equipment

_____Mechanisms discriminate against this type of investigator (specify mechanism_____)

Name of Institution:_____

Definitions

Selected science departments: Include only Ph.D.-granting departments. The following should also be observed in determining departments to be reported:

Physics - Include only departments designated as Physics or Physics and Astronomy departments. Do not include highly specialized departments such as Molecular Physics or Electrophysics.

Mathematics - Do not include departments limited to Applied Mathematics, Computer Science, or Statistics.

Biology and Biological Science - Include only departments designated as "Biology" or "Biological Science" departments. Do not include departments covering only specialized fields such as Cellular Biology, or Molecular Biology.

Microbiology - Include only departments designated as Microbiology or Bacteriology.

Physiology - Include departments of Physiology or of Physiology and other subjects, e.g., "Physiology and Biophysics."

Sociology - Include departments designated as Sociology or as Sociology and Anthropology.

Economics - Do not include departments of Agricultural Economics.

Psychology - Do not include highly specialized departments or fields of education such as departments of Child Development, Child Studies, Educational Psychology, Counseling.

Selected clinical departments: Include only clinical departments located in medical schools. The following should also be observed in determining departments to be reported:

Medicine - Include all divisions -- e.g., Cardiology, Gastroentology, Hematology, but not Pediatrics -- within department of Medicine.

Surgery - Include all divisions -- e.g., Neurosurgery, Orthopedic Surgery, Urology -- located within department of Surgery.

Pathology - Include all divisions -- e.g., Forensic Pathology, Clinical Pathology, Neuropathology -- located within department of Pathology.

Pediatrics - Include all divisions -- e.g., Child Development, Pediatric Psychology, Child Psychiatry -- located within department of Pediatrics.

SURVEY OF RESEARCH SUPPORT FOR SCIENCE FACULTY

HIGHLIGHTS[1]

In FY 1971, two-thirds of the chairmen felt that the division of available research funds between young and senior staff in their departments was appropriate.[2] Three percent thought that the young staff had more than an appropriate share. One-fourth of the chairmen reported that the split favored the senior staff and, therefore, the division was not adequate for the young staff. The following variations from this overall average of one-fourth by type of institution or by departmental field appear to merit comment (Table A). Only 19 percent of the chairmen in large private universities thought that the split was inappropriate for young staff, but 32 percent of those classified as "four-year colleges" or independent medical schools in the survey reported an inadequate division of funds for young staff. Among science and engineering fields the reports of inadequate division of research funds for young staff were as low as 17 percent but none exceeded 39 percent (Table B). The reader is cautioned that information on the split of funds by field in various types of institutions shown in the report is based on relatively small numbers of departments.

The reason given most frequently by the department chairman for the inappropriate division of funds was the lack of sufficient funds. The nature of

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[1]Includes discussion of data from this survey in relationship to data on the same subject obtained in earlier surveys conducted by the National Science Foundation.

[2]It may be noted that the department chairmen were not asked to indicate whether or not sufficient research funds were available to his department, but whether or not the division of available funds between young and senior staff was appropriate.

the Federal research grant procedure was cited by 39 chairmen; lack of experience by young staff was also frequently listed.

Information collected in three earlier surveys by the National Science Foundation is also included in Table B. The responses of department chairmen indicate an appropriate division of funds for young staff in 75 percent of the departments in FY 1968. The percentages increased to 79 percent and 78 percent in FY 1969 and FY 1970. The return to 75 percent this fiscal year may signal the need to continue to pay close attention to this vital aspect of scientific research. There are indications that in certain fields (i.e., physics, electrical engineering, and social sciences) the share of funds going to young staff has decreased appreciably in FY 1971, presumably due to the stringency of funds.

Division of Science Resources Studies
National Science Foundation

November 19, 1971

Table A
Research Support for Science and Engineering Faculty
By Type of Institution

Type of Institution	Number of Departments	Percent of Ph.D.-Granting Departments Reporting: Split of Funds Appropriate	Split Not Appropriate; Split of Funds Favors: Young Staff	Split Not Appropriate; Split of Funds Favors: Senior Staff	Fund Split Not Specified
All institutions	1,623	67.0	3.4	25.4	4.2
Large public universities	514	66.1	5.7	24.8	3.4
Small public universities	392	68.9	2.8	24.6	3.7
Large private universities	265	74.5	2.9	18.7	3.9
Small private universities	179	67.1	1.2	29.4	2.3
All other (four-year colleges and independent medical schools)	273	58.4	2.3	31.7	7.7

Table B
Appropriateness of Division of Research Funds
Between Junior and Senior Staff

Selected Science Departments By Field	Percent of Departments Reporting Inadequate Division of Funds for Junior Staff: FY 1968	FY 1969	FY 1970	FY 1971
All selected science departments	24.9	20.4	21.7	25.4
Chemistry	34.4	27.1	26.9	16.9
Physics	28.9	23.4	24.3	39.0
Mathematics	24.7	23.3	27.4	26.2
Electrical engineering	25.7	15.1	8.9	25.2
Chemical engineering	18.6	21.2	18.5	20.5
Biochemistry	30.8	NA	38.1	27.3
Biological sciences	14.9	28.8	23.1	22.1
Microbiology	16.7	19.5	26.7	22.7
Physiology	16.7	22.2	23.1	20.2
Sociology	31.6	14.9	18.4	31.4
Economics	21.8	16.3	9.3	30.6
Psychology	16.2	12.1	14.8	21.2

NOTE: FY 1968 data may not be strictly comparable to the later years because of a change in the format of the wording on the survey question.

SOURCE: Fiscal years 1968, 1969, and 1970 from NSF surveys; FY 1971 from a survey of the Higher Education Panel, American Council on Education.